

NOTE

New Collections of Sexuales of *Diuraphis*
(Homoptera: Aphididae) in North America

The 1986 discovery in the United States of *Diuraphis noxia* (Mordvilko), the Russian wheat aphid (Stoetzel, 1987, *Journal of Economic Entomology* 80: 696-704), brought renewed interest in the biological development of all species of *Diuraphis* occurring in North America. Aphids in this genus are pests of various grasses and small grains including wheat. The occurrence, or not, of sexuales and viable overwintering eggs impacts our efforts to control these pest species, and researchers are encouraged to look for these developmental stages.

On September 7, 1989, while working at the ARS European Parasite Laboratory, Behoust, France, one of us (MBS) discovered an apterous male of *D. noxia* in a laboratory colony originally collected on wheat and barley at Kishinev and vicinity, Moldavia, USSR (now Moldova), May 28-June 2, 1989. This represented the first contemporary collection of a sexuales of *D. noxia*. Subsequently, apterous oviparae and additional apterous males were reared from the same colony. In November 1989, apterous oviparae and apterous males were collected in fields in the Crimea; and apterous oviparae were collected in fields in the Ukraine (Kiriatic et al. 1990, *Proceedings of the Entomological Society of Washington* 92: 544-547). Grossheim (1914, *Memoirs of the Natural History Museum Zemstvo Governmental Taurida, Simferopol III*: 35-78) reported that the sexuales of *D. noxia* were apterous.

Since the 1989 discovery of sexuales of *D. noxia* in the colony from Moldavia, a concerted effort has been made to determine if sexuales of *D. noxia* are being produced in North America. In November 1989, Susan Halbert (Kiriatic et al. op. cit.) collected a few oviparae of *D. noxia* in Idaho and

Oregon. One of us (MBS) has seen two oviparae of *D. noxia* collected January 5, 1990, by Keith A. Mirkes et al. in a laboratory colony originally collected in Bailey Co., Texas, and being maintained on a mixture of wheat and barley at the USDA/ARS Plant Science Laboratory, Stillwater, Oklahoma. To date, no males of *D. noxia* have been collected in North America.

In September 1990, Stoetzel collected *D. nodulus* (Richards) on downy brome in Sunderland, British Columbia, Canada, the type locality. This represented the first find of this species since Richards' original description in 1954 (*Canadian Entomologist* 91: 248-253). Specimens were sent to Cho-Kai Chan, Agriculture Canada, Vancouver, British Columbia, for establishment of a colony. Unfortunately, the colony developed into oviparae only and was lost. On September 12, 1991, one of us (RWH) collected and the other (MBS) identified one apterous male and more than 25 apterous oviparae of *D. nodulus* on mountain brome, *Bromus marginatus* Nees ex Steud., at the Upper Colorado Environmental Plant Center (UCEPC), Meeker, Colorado. More than 30 additional oviparae were collected at the same location on October 8, 1991. On March 26, 1992, on mountain brome at UCEPC, Meeker, Colorado, one of us (RWH) collected several overwintering eggs, some of which hatched after 4-5 days in the laboratory. This represents the first and only collection of sexuales and overwintering eggs of *D. nodulus*.

Gillette described *D. (H.) tritici*, the western wheat aphid, in 1911 (*Entomological News* 22: 440-442) from specimens collected on leaves of Colorado blue-stem, "*Agropyron glaucum*," at Fort Collins, Colorado. Gillette reported that he had col-

lected both apterous oviparous females and apterous males. Parker (1916. *Journal of Economic Entomology* 9: 182–187) reported that overwintering eggs of *D. (H.) tritici*, a major pest of wheat, *Triticum aestivum* L., hatched in early April in Montana and that stem mothers matured within two weeks. Parker reported that males and oviparae first appeared about October 15th and that egg-laying continued into December. On October 8, 10, 1991, one of us (RWH) collected and the other (MBS) identified 6 males and more than 50 oviparae of *D. (H.) tritici* on mountain brome at UCEPC, Meeker, Colorado. One of us (RWH) collected several overwintering eggs, some of which hatched after 4–5 days in the laboratory.

Walker (1848. *The Zoologist* 6: 2217–

2221) described *D. (H.) frequens* from apterous oviparae and apterous males reportedly collected on *Artemisia maritima* near Fleetwood, England. On February 1, 1990, Susan Halbert (personal communication) collected one apterous male of *D. (H.) tritici* in a laboratory colony originally collected in Idaho and maintained on wheat at the University of Idaho facility in Parma.

A complete report of the morphology of these sexuales and the status of the species in *Diuraphis* will be given in a future article.

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